

CATALOG NO. 76
OCTOBER 1953

National

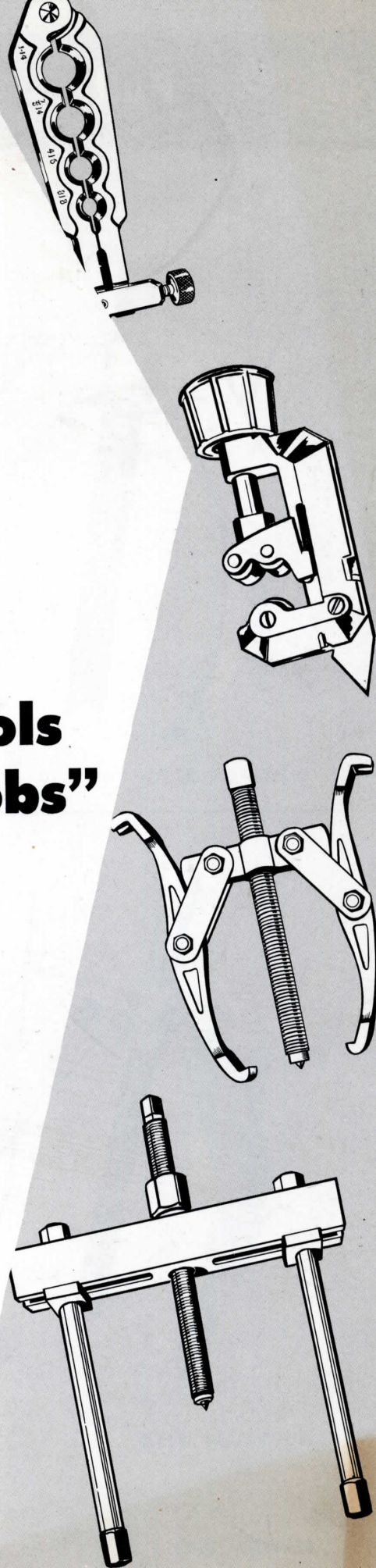
GARAGE TOOLS

"Tough Tools for Tough Jobs"

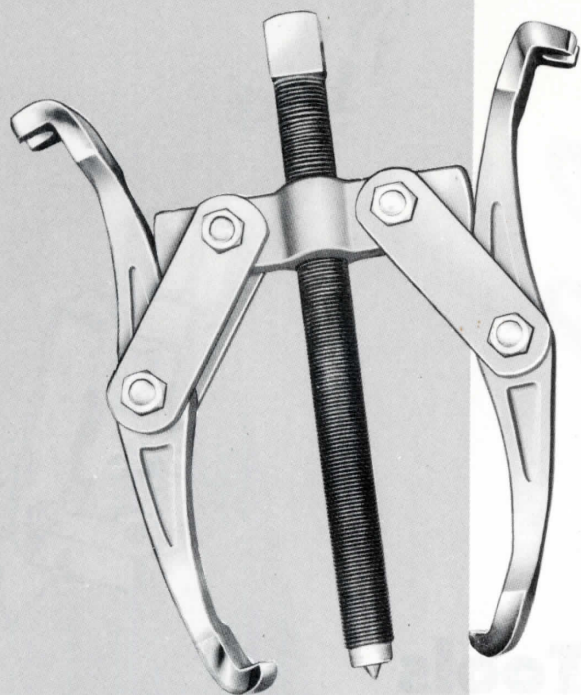
This edition of our general catalogue contains many new tools that have been developed to meet specific needs. Many of our regular tools have been changed in style, construction and utility because of additional shop research and improved manufacturing processes.

National is proud to fill the needs of the skilled craftsman who wants "Tough Tools For Tough Jobs".

NATIONAL MACHINE & TOOL CO.
4077 Page Avenue
JACKSON, MICHIGAN, U.S.A.



Pullers and Pulling Tools

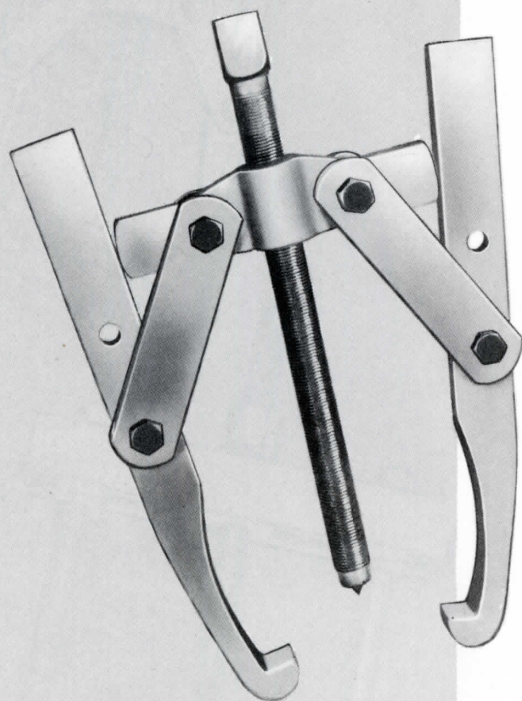


DUO-GRIP 2172

"DUO-GRIP" PULLERS

"Duo-Grip" Pullers have Reversible Jaws with thin fingers on one end to get into restricted spaces. Other end has wider jaws for maximum support to flat surfaces. The wide fingers on the No. 2172 are slotted for hooking onto cap screws to remove gears and parts with tapped holes. Forged cross arm and jaws. Alloy steel forcing screw with buttress threads. Cadmium finish. Specifications listed below. See opposite page for attachments.

Puller Number	Max. Reach	Maximum Spread	Lgth. and Diam. Forcing Screw	Capacity	Weight
2171	3½"	0" to 6"	⅝" x 7"	5 Ton	2 lb.
2172	6"	0" to 9"	1⅛" x 9⅜"	9 Ton	4½ lb.



AUTO-JAW 2176

"AUTO-JAW" PULLERS

The "Auto-Jaw" Puller comes in a size for every application. Rugged power units with automatic gripping action on the jaws. Component parts are forged from alloy steel. Cadmium finish. Specifications listed below.

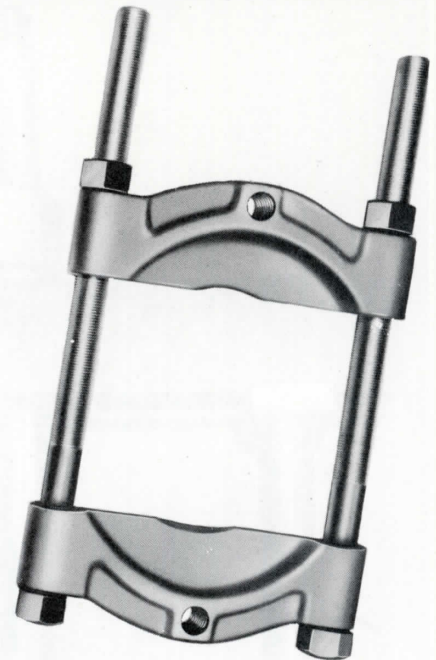
Puller No.	Max. Reach	Maximum Spread	Lgth. and Diam. Forcing Screw	Capacity	Weight
2175	5½"	0" to 8"	⅝" x 7"	5 Ton	2½ lb.
2176	10"	0" to 12"	¾" x 12½"	15 Ton	9¼ lb.
2177	16"	0" to 18"	¾" x 12½"	15 Ton	11¾ lb.
2178	16"	0" to 18"	1¼" x 18¼"	28 Ton	35 lb.
2179	22"	0" to 24"	1¼" x 18¼"	28 Ton	40 lb.

Pullers and Pulling Tools

BEARING PULLER ATTACHMENTS

For separating double Timken bearings, and for obtaining a sure, even grip on bearings, gears and small wheels to be removed from a shaft. May also be used as an arbor press bed plate. Used with "Duo-Grip", "Auto-Jaw" and "Pull-R-Press" Pullers. Forged from alloy steel, heat treated, Cadmium finish.

Tool No.	Capacity	Distance Between Side Bolts	Thread Size of Hole	Weight	Use With Pullers
2401	1/4" to 2 1/2"	2 3/4"	3/8"—16	2 lb.	2171, 2172, 2201, 2202
2402	3/4" to 4 1/4"	5 1/4"	5/8"—18	5 1/2 lb.	2172, 2175, 2176, 2271, 2272
2403	1" to 6"	6 3/4"	5/8"—18	10 lb.	2176, 2177, 2272, 2273
2404	1" to 7 1/2"	8"	1"—14	18 1/2 lb.	2177, 2178, 2273

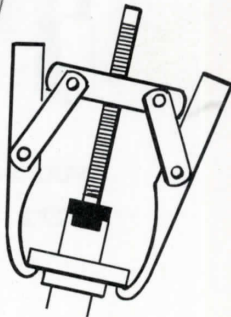
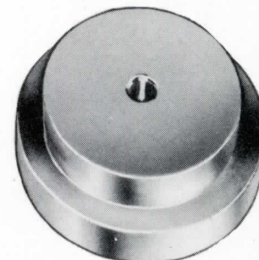


2403

STEP PLATE ADAPTORS

For protecting ends of hollow shafts when pulling with "Duo-Grip", "Auto-Jaw", or "Pull-R-Press" Pullers. Select proper size step plate adaptor and insert on end of shaft. Counter-sunk hole provides true center and base for forcing screw of puller.

Part No.	Large Dia.	Small Dia.	Part No.	Large Dia.	Small Dia.
2770	7/8"	5/8"	2779	2 1/8"	1 3/4"
2771	1"	3/4"	2780	2 3/8"	1 7/8"
2772	1 1/8"	7/8"	2781	2 1/2"	2"
2773	1 1/4"	1"	2782	2 5/8"	2 1/8"
2774	1 3/8"	1 1/8"	2783	2 3/4"	2 1/4"
2775	1 5/8"	1 1/4"	2784	2 7/8"	2 3/8"
2776	1 3/4"	1 3/8"	2785	3"	2 1/2"
2777	1 7/8"	1 1/2"	2786	3 1/4"	2 1/4"
2778	2"	1 5/8"	2787	3 1/2"	3"

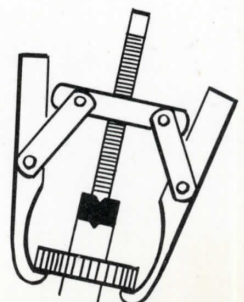
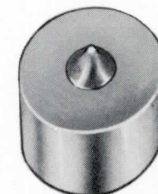


2770 SERIES

SHAFT PROTECTORS

Used the same as Step Plate Adaptors, except on solid shafts. Prevents burring and other damage to shaft ends on hard pulls. Available individually or in sets of six.

Part No.	Diameter	Length	Countersink	Point
2790	5/8"	5/8"	1 3/64" x 60°	3/16" x 60°
2791	5/8"	5/8"	1 7/64" x 60°	1/4" x 60°
2792	3/4"	3/4"	1 7/64" x 60°	1/4" x 60°
2793	1"	3/4"	2 5/64" x 60°	5/16" x 60°
2794	1 1/4"	3/4"	2 5/64" x 60°	3/8" x 60°
2795	1 1/2"	3/4"	2 5/64" x 60°	7/16" x 60°
2796	Set of Six as listed above.			



2790 SERIES



PULL-R-PRESS
2272

PULL-R-PRESS

A portable power unit for all types of pulling applications. It both pulls and presses with the forcing screw. When assembled with the heavy duty hex nut above the cross bar, the forcing screw pulls shafts, bearings and races. (NOTE: Must be used with the proper Connector adaptors or the No. 2470 Internal Bearing Puller.) When assembled with the nut below the cross bar, the forcing screw presses while the legs do the pulling. It is used in this way to pull outer bearings, gears, and wheels. Attachments used are the Bearing Pulling Attachments described on Page 3 of the National Catalog or the threaded adaptors, both connector and male plug shown on the opposite page. When used with the Bearing Pulling Attachments this tool also serves as a portable arbor press. Available in three sizes to meet every application.

Number	Bar Length	Leg Range	Forcing Screw	Legs Furnished	Weight
2271	8 1/4"	2" to 7 3/4"	5/8" x 12"	No. 2278	9 lb.
2272	10 1/2"	4 3/4" to 9 3/4"	1" x 13"	No. 2281	16 1/2 lb.
2273	13 1/2"	4 3/4" to 12 3/4"	1" x 13"	No. 2281	18 1/2 lb.

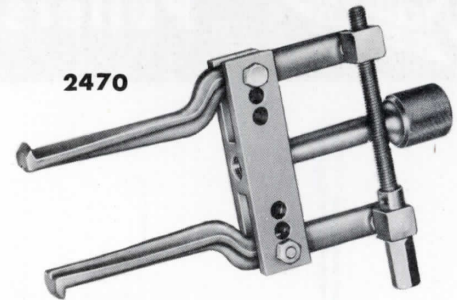
PULL-R-PRESS LEGS

Pull-R-Press Legs are available in various lengths to meet the demands of every application. Additional lengths can be obtained by connecting two sets of legs with the No. 2711 Connector Adaptors.

Number	Length	Thread Size	Used on Pull-R-Press Number	Weight Per Pair
2278	6 3/4"	5/8"—18	2271	1 1/4 lb.
2279	15 3/4"	5/8"—18	2271	2 3/4 lb.
2280	4 1/2"	5/8"—18	2272-2273	3 lb.
2281	9 1/2"	5/8"—18	2272-2273	4 1/2 lb.
2282	16 1/2"	5/8"—18	2272-2273	7 lb.
2283	22 1/2"	5/8"—18	2272-2273	10 lb.

INTERNAL BEARING PULLER No. 2470

This tool is used for removing bearing races from blind holes and for other internal pulling applications. Used as attachments with No. 2272 and No. 2273 Pull-R-Press or with the 2340 Slide Hammer Puller on Page 6. Forged from alloy steel. Cadmium finish. Has a range of 0" to 9" and a reach of 4". Weight, 4 lbs.



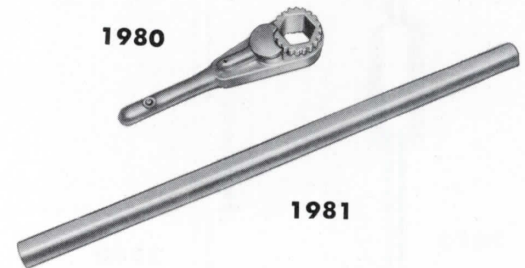
2470

HEAVY DUTY RATCHET No. 1980

This rugged, heavy-duty, forged ratchet is especially designed for use on the No. 2272 and 2273 Pull-R-Press and on the No. 7140 Universal Sleeve Remover shown on page 15. Has a 17/16" Hex opening to handle 1" nuts and 17/16" Hex bolt heads. The No. 1981 24" Tubular Handle is available to provide extra leverage. Forged from high quality alloy steel. Cadmium finish.

No. 1980 REVERSIBLE RATCHET ONLY
No. 1981 24" TUBULAR HANDLE

Wt. 4 lbs.
Wt. 3 lbs.



1980

1981

CONNECTOR ADAPTORS

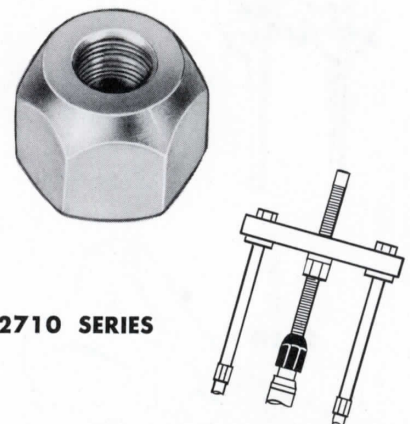
Female Threaded Adaptors for use as connectors on the Pull-R-Press. Numbers 2710 through 2722 have a 5/8"-18 thread in one end for attaching to Pull-R-Press Legs. These may be used to join two pairs of legs or to attach legs to studs or other parts. They also attach to forcing screw on 2271 Pull-R-Press to pull axles and shafts.

Number	Thread Sizes	Number	Thread Sizes
2710	1/2" — 20	2717	1" — 14
2711	5/8" — 18	2718	1 1/8" — 12
2712	3/4" — 16	2719	1 1/4" — 12
2713	3/4" — 20	2720	1 1/4" — 7
2714	1 3/16" — 20	2721	1 1/2" — 12
2715	7/8" — 14	2722	1 1/2" — 7
2716	7/8" — 18		

The Adaptors below have a 1" — 14 thread in one end for attaching to the forcing screw of the No. 2272 and No. 2273 Pull-R-Press for removing axles and shafts.

Number	Thread Sizes	Number	Thread Sizes
2725	1" — 14	2729	1 1/4" — 7
2726	1 1/8" — 12	2730	1 1/2" — 12
2727	1 1/4" — 12	2731	1 1/2" — 7
2728	1 1/4" — 18		

2710 SERIES

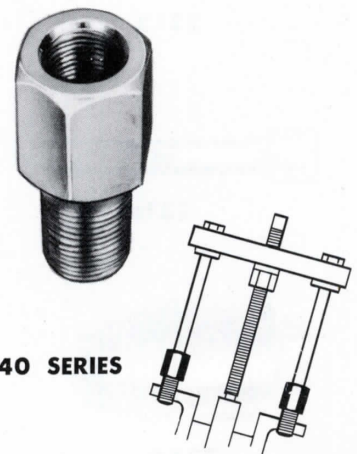


CONVERSION ADAPTORS

Adaptors for converting from one male thread size to another. Sizes with 5/8"-18 female thread fit the Pull-R-Press Legs and the forcing screw on the No. 2271 Pull-R-Press. The 1" — 14 threads are for the Forcing Screw on the Numbers 2272 and 2273 Pull-R-Press. Required for pulling or attaching Pull-R-Press to parts with tapped holes, such as shafts, pinions, main bearing caps, cages, etc.

Number	Female Thread	Male Thread	Number	Female Thread	Male Thread
2740	5/8" — 18	1/4" — 20	2752	5/8" — 18	1" — 14
2741	5/8" — 18	5/16" — 18	2753	5/8" — 18	1 1/8" — 12
2742	5/8" — 18	3/8" — 16	2754	5/8" — 18	1/8" — Pipe
2743	5/8" — 18	3/8" — 24	2755	5/8" — 18	1/4" — Pipe
2744	5/8" — 18	7/16" — 20	2756	5/8" — 18	3/8" — Pipe
2745	5/8" — 18	1/2" — 20	2757	5/8" — 18	1/2" — Pipe
2746	5/8" — 18	1/2" — 13	2760	1" — 14	5/8" — 11
2747	5/8" — 18	5/8" — 11	2761	1" — 14	3/4" — 16
2748	5/8" — 18	3/4" — 16	2762	1" — 14	3/4" — 10
2749	5/8" — 18	3/4" — 10	2763	1" — 14	7/8" — 14
2750	5/8" — 18	7/8" — 14	2764	1" — 14	7/8" — 9
2751	5/8" — 18	7/8" — 9	2765	1" — 14	1 1/8" — 12

2740 SERIES



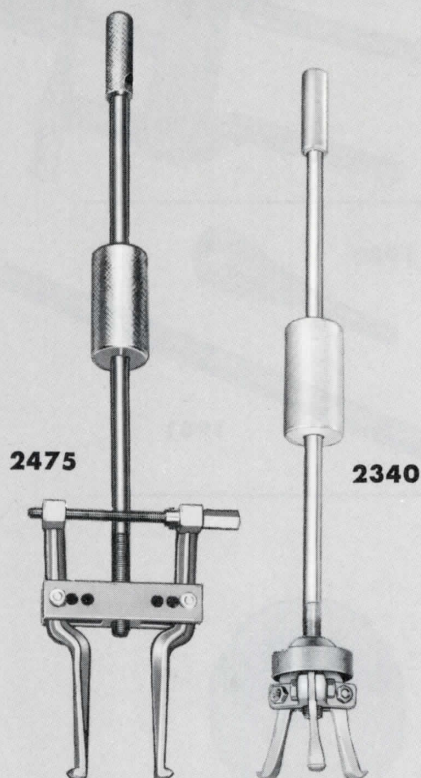
Pullers and Pulling Tools

SLIDE HAMMER PULLER

A combination tool, which may be used for both inside and outside pulling jobs. As illustrated the puller has a maximum capacity of 2 1/2" for pulling bearings, grease retainers, oil seals, etc. With the cone and jaws reversed it has a maximum capacity of 4" for pulling gears, bearings, pinions, etc. The slide hammer shaft assembly is used with all the attachments shown below, or with the No. 2470 Internal Bearing Puller on page 5 to make up Tool No. 2475 below. Cadmium finish.

No. 2340 SLIDE HAMMER PULLER
No. 2341 SLIDE HAMMER ASSEMBLY ONLY

Wt. 9 lbs.
Wt. 6 lbs.



SLIDE HAMMER INTERNAL PULLER

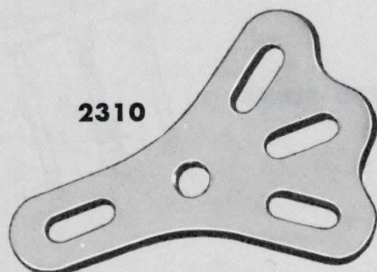
No. 2475

A fast acting internal pulling assembly for removing grease retainers, oil seals, bearing races, etc. Assembly consists of No. 2341 Slide Hammer Assembly and No. 2470 Internal Bearing Puller. Weight 10 lbs.

Slide Hammer Attachments

FOR AXLE SHAFT PULLING — No. 2310

This rugged attachment for the No. 2340 Puller will pull the axle shafts on practically all late model cars. The body is slotted to fit the hub bolts on either five or six bolt hubs. Cadmium finish. Shipping weight, 2 1/2 lbs.



FOR SHACKLE PIN PULLING — No. 2312

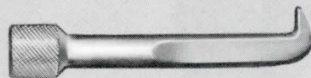
The male thread of this attachment is screwed into the hole for the Alemite filling, the female end onto the shaft of either Puller No. 2340 or 2341. A few sharp blows with the slide hammer will then remove the most stubborn shackle pin. Cadmium finish. Shipping weight, 1/2 lb.



2312

FOR HOOK PULLING — No. 2314

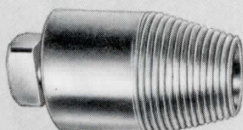
The hook pulling attachment is used for pulling grease seals and bearing races, and for pilot bearings too large for Puller No. 2320. Many other applications will be found for this versatile hook attachment. The tool is 6" long with the hook 3/8" wide. Fits either the No. 2340 or No. 2341 Puller. Cadmium finish. Shipping weight, 1/2 lb.



2314

FOR OIL SEAL PULLING — No. 2316

This attachment, the No. 2340 and 2341 Pullers, pulls a large range of oil seals, and will handle seals in both the pinion end and transmission end. The Puller head has 1 1/8" of thread which tapers from 1-9/16" to 2-3/16". (Forcing Screw included.) Overall length is 4". Cadmium finish. Shipping weight, 3 lbs.



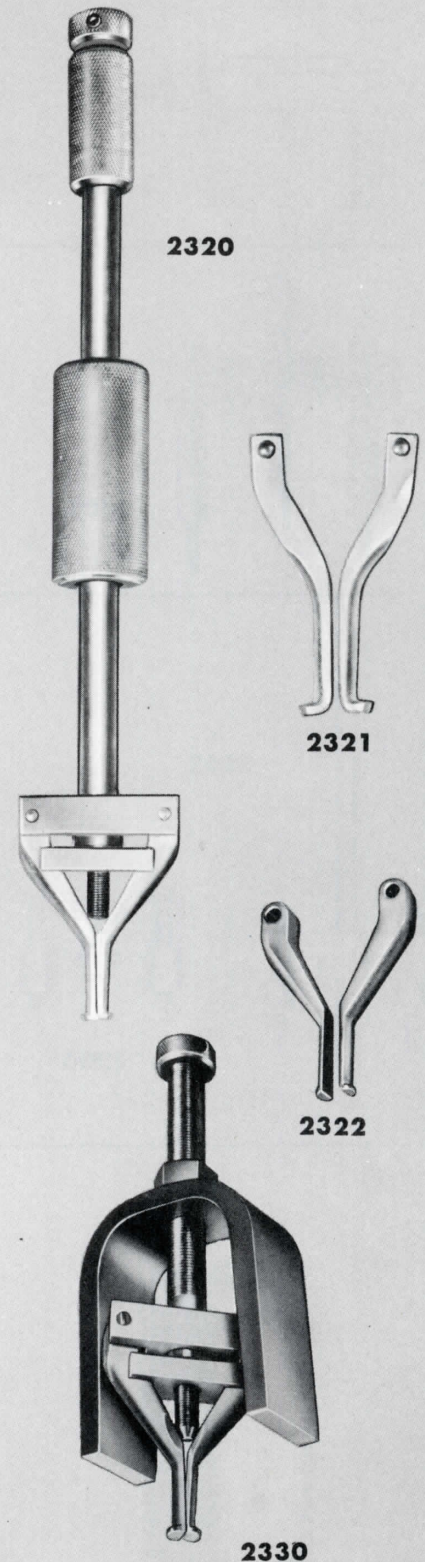
2316



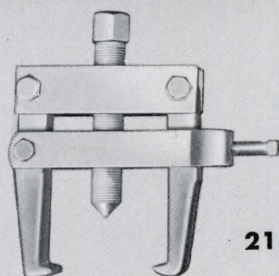
PILOT BEARING PULLERS

Two styles of pilot bearing pullers with extra small jaws and long grease retainer jaws to meet every requirement. The No. 2320 Slide Hammer Puller is the more popular because of its rapid application. The No. 2330 Yoke Type Puller is necessary for pulling flywheel pilot bearings in trucks and tractors where obstructions do not permit the use of a slide hammer puller. On both pullers the jaws are adjusted by the knurled knob on the end of the tool. The regular jaws have a capacity of $\frac{1}{2}$ " to $1\frac{1}{4}$ ". The No. 2322 Small Jaws have a minimum capacity of $\frac{3}{8}$ " but are not as strong as the regular jaws. The No. 2321 Grease Retainer Jaws have a 4" reach for grease retainers, oil seals, etc.

No. 2320	Slide Hammer Pilot Bearing Puller	Wt. 4 lbs.
No. 2321	Grease Retainer Jaws	Wt. $\frac{3}{4}$ lb.
No. 2322	Small Jaws, $\frac{3}{8}$" I.D.	Wt. $\frac{1}{2}$ lb.
No. 2330	Yoke Puller	Wt. $3\frac{1}{2}$ lbs.



Pullers and Pulling Tools

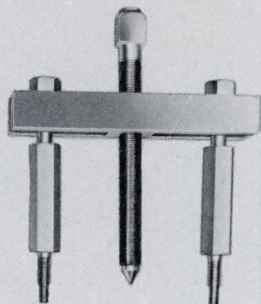


2122

PITMAN ARM PULLER

No. 2122

A heavy duty universal Pitman arm puller with jaw capacity to 3 1/4". May be adapted to many other pulling operations. Tightening one screw locks the jaws firmly upon the work. Cadmium finish. Shipping weight, 2 1/4 lbs.

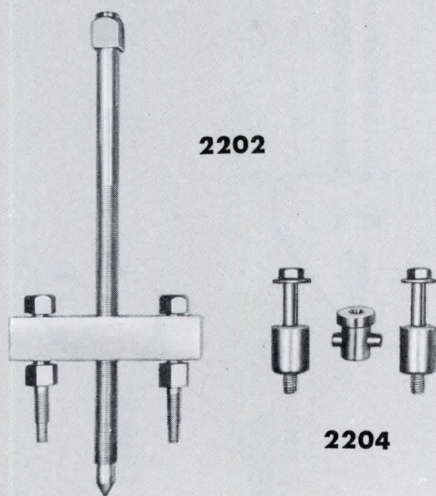


2201

TIMING GEAR PULLER

No. 2201

A handy tool for pulling timing gears and other gears that have tapped holes. The sliding fingers are quickly adjusted to handle holes up to 5 3/4" apart. The 6" side screws have two thread sizes, 3/8"-16 and 5/16"-18. All screws are heat treated. Cadmium plated. Shipping weight, 4 lbs.



2202

2204

CRANKSHAFT GEAR PULLER

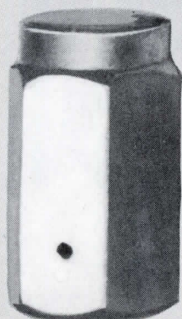
No. 2202

A puller that will handle a variety of general pulling work, but especially designed for Chevrolet crankshaft gears with tapped holes. It has short (3 1/2" overall) pulling screws and an 11" center screw. Side screws have two thread sizes, 3/8"-16 and 5/16"-18. Cadmium plated. Shipping weight, 4 1/2 lbs.

HARMONIC BALANCER CONVERSION KIT

No. 2204

Spacer screws and crank adaptor to convert the 2202 into a harmonic balancer puller and driver for Chevrolets, Chrysler, Buick and others.



KNOCKOUT TYPE WHEEL PULLERS

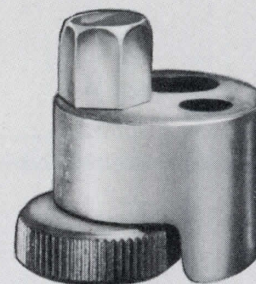
Our knockout wheel pullers are accurately machined from high grade alloy steels, fully heat treated to stand up under the hardest service. They will not mushroom or split, and they positively protect the threaded shaft from injury. Cadmium finish. Available as follows:

Number	Thread Size	Weight
2631	5/8" — 18	1/2 lb.
2632	3/4" — 16	1/2 lb.
2633	3/4" — 20	1/2 lb.
2634	7/8" — 14	1/2 lb.
2635	1" — 14	1/2 lb.
2511	Knockout set in metal box. Consists of: 2631, 2632, 2634, 2635 3 lbs.	

STUD REMOVER AND REPLACER

No. 2621

A compact, powerful tool designed to fit into hard-to-reach spots and remove hard-to-turn studs. Handles all sizes from $\frac{1}{4}$ " to $\frac{3}{4}$ ", even studs broken off close to the block. Tool can be turned with any $\frac{3}{4}$ " socket, ratchet, or box wrench. Cadmium finish. Shipping weight, 1 lb.

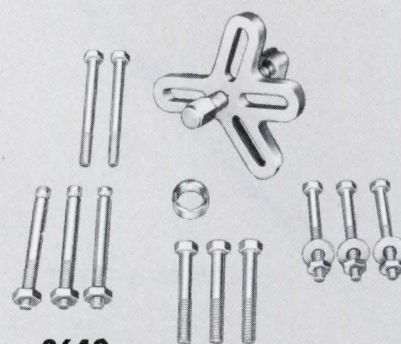


2621

STEERING WHEEL PULLER SET

No. 2640

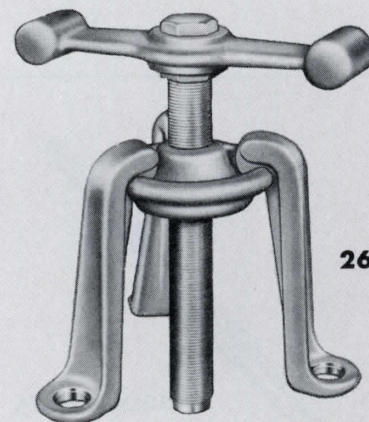
This steering wheel puller set will pull most late model steering wheels. Set consists of four sets of studs, including a special set for Buick — a body, forcing screw and a swivel adaptor with wire slot. Packed complete in paper box. Cadmium finish. Shipping weight, 2 $\frac{1}{2}$ lbs.



2640

UNIVERSAL WHEEL HUB PULLER

A universal wheel hub puller for removing hubs from all makes of cars and light trucks. Legs are adjustable to wheels with any number of lugs in a circle up to 7 $\frac{1}{2}$ " diameter. Longer legs are available for use on trucks and wheels with lugs in larger circle. Slugger wrench is included. This puller has all forged parts from alloy steel. It exerts a tremendous pulling force, and is self-centering to avoid damage or distortion to wheel lugs and other parts. The Ford Pulling Attachment is necessary for removing hubs on Ford and Mercury automobiles.

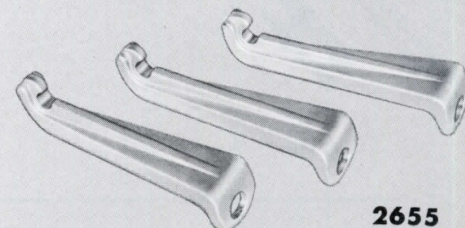


2650

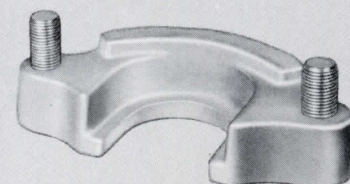
No. 2650 Universal Hub Puller Assembly
(Complete with No. 2652 Wrench)
Weight 9 $\frac{1}{2}$ lbs.

No. 2651 Ford Attachment Only
Weight 2 $\frac{1}{2}$ lbs.

No. 2655 Truck Legs, Set of 3
Weight 5 $\frac{1}{2}$ lbs.



2655



2651

Reamers and Cutting Tools



PILOT



REAMER & PILOT

NEW TYPE EXPANSION REAMERS AND PILOTS

These reamers with the detachable pilot make a complete and efficient reaming tool. The reamer may be used without the pilot on many jobs and with the pilot attached, as an aligning reamer. The pilot to these reamers will fit most other makes of reamers. Available in sizes and specifications listed below.

Number	Range	Blade Length	Length Overall	Number of Blades
5201	15/32" to 17/32"	2"	5 1/4"	6
5202	17/32" to 19/32"	2"	5 3/4"	6
5203	19/32" to 21/32"	2 1/4"	6 1/4"	7
5204	21/32" to 23/32"	2 1/4"	6 3/4"	7
5205	23/32" to 25/32"	2 1/2"	7 1/4"	7
5206	25/32" to 27/32"	2 1/2"	7 3/4"	7
5207	27/32" to 15/16"	3"	8 1/4"	7
5208	15/16" to 1 1/16"	3"	8 3/4"	7
5209	1 1/16" to 1 3/16"	3 1/2"	10"	7
5210	1 3/16" to 1 11/32"	3 1/2"	11"	7
5211	1 11/32" to 1 17/32"	4"	12"	7
5212	1 17/32" to 1 25/32"	4"	13"	7
5213	1 25/32" to 2 7/32"	5 1/4"	15"	7
5214	2 7/32" to 2 3/4"	5 3/4"	17"	7
5215	2 3/4" to 3 11/32"	6 1/2"	19"	7
5221	Set of 8 Reamers only, 5201 to 5208.			
5223	Set of 8 Reamers and Pilots, 5201 to 5208.			
5224	Set of 8 Pilots only, 5201 to 5208.			
5228	Set of 12 Reamers only, 5201 to 5212.			



5300 SERIES

PRECISION PILOT REAMERS

These reamers have double taper, counter sunk pilot bushings to get perfect alignment. This affords the best way to ream king bolt bushings, piston pin bushings, spring shackle bushings, water pump bushings, and tie rod bushings. Furnished individually, or in sets, as follows:

Number	Range	Number	Range
5301	7/16" — 1/2"	5309	.915" — 1"
5302	1/2" — 9/16"	5310	.985" — 1 1/16"
5303	9/16" — 5/8"	5311	1 1/16" — 1 1/8"
5304	5/8" — 11/16"	5312	1 1/8" — 1 1/4"
5305	11/16" — 3/4"	5313	1 1/4" — 1 3/8"
5306	.730" — 13/16"	5314	1 3/8" — 1 1/2"
5307	13/16" — 7/8"	5315	1 1/2" — 1 5/8"
5308	.860" — 15/16"	5316	1 5/8" — 1 13/16"
5320	Set of 4 Reamers, 5301 to 5304, Range 7/16" to 11/16".		
5321	Set of 7 Reamers, 5305 to 5311, Range 1 1/16" to 1 1/8".		

REPAIRMAN'S TAPER REAMERS

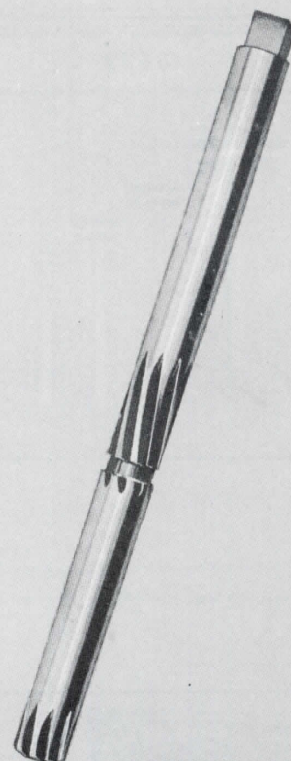
For removing burrs and enlarging and aligning holes in sheet metal, aluminum, bronze, wood, plastic, etc., and for starting taps. Of heat-treated high grade tool steel and accurately machined. Made oversize so full range can be maintained after sharpening. Round shanks permit use with electric drill.

No. 5875 Range 1/8" to 1/2" Length 5 5/8"
No. 5876 Range 7/16" to 1" Length 6 1/2"

5875

KING PIN AND PISTON PIN REAMERS

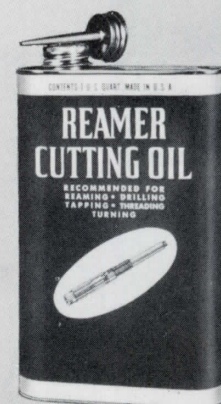
NUMBER	SIZE	KING BOLT BUSHING REAMER	PISTON PIN BUSHING REAMER
5708	.7353"	All Chevrolet 4 & 6 Cyl. 1928-40 (except knee action). 1929-40 1/2, 3/4, 1 Ton Trucks.	For all Ford V-8 cars incl. 1952 except 60 H.P. All 95-100 H.P. V-8 trucks incl. 1952. All Mercury & Lincoln Zephyr 1937-52. All Lincoln 1936-48.
5710	.750-.751"		
5716	.7965"	All Plymouth & Dodge 1935-52 (except Dodge 7 Pass. & Limousine); Some Chrysler & DeSoto Models; Kaiser, Frazer & Henry J to '52. Also 1/2 Ton Dodge Trucks.	
5718	.8135"	All A, B, & V-8 Ford Pass. Cars, Incl. 1952, 1/2, 3/4 Ton Ford Trucks, incl. 1952 Mercury Cars 1938-48 incl. & 52-53.	For all Chrysler 6 & 8 cyl. 1931-50. All DeSoto 1934-51. All 6 Cyl. Plymouths. All 6 Cyl. Dodge trucks 3 1/4", 3 3/8" and 3-7/16" bore 1931-51 Nash 6 Cyl. 1949-51.
5720	.860"		
5722	.863"	Buick 1934-52 Models 40, 50, 60 & 70. All Oldsmobile 1926-52; Pontiac 1937-52.	
5723	.866"		Chevrolet Six 1937-52.
5724	.867"	All Chevrolet Pass. Cars, Cars with Ind. Wheel Suspension, 1934-52; 1941-52 1/2 Ton Trucks; All Packard Models six & eight, 1935-52 inclusive.	
5726	.876"		
5732	.922"	Chevrolet 1 1/2 Ton Trucks, 1931-50 (Except Cab-over Engine & Heavy Duty). 3/4 & 1 Ton 1946-52.	Chevrolet 6 1937-52, .010 oversize. All Packards, Studebakers (except Champions). Buick 1937-51 (except Models 40 & 50).
5738	.938"	Lincoln Zephyr & Lincoln, 1937-51. Mercury 1949-51. Dodge Trucks, VF & WF Series 1940-47.	
5758	1.110"	Chevrolet Trucks, Cab-over & Heavy Duty, 3/4, 1, 1 1/2 & 2 Ton 1939-52 incl. Also GMC, Mack, Studebaker & White Trucks W/1.109 King Bolts.	
5760	1.1105"	Set of two reamers for Timken Axles, Nos. 30000 & 31000 Series Reo & White Trucks using 1.109 King Pins. Length Overall, 14 3/8".	
5764	1.130"	Ford V-8 1938-52 incl. F4, F5 & F6 1, 1 1/2 & 2 Ton.	
5766	1.2355"	Set of two reamers for Ford Trucks F7 & F8 2 1/2 & 3 Ton 1948-52. Diamond T, 1940-46 Models 702, 702SBD1500. Timken Axle Nos. 32000 & 33000 Series. Clark Axle Model F-308. Dodge, Ford School Bus, Kenworth, Reo, Studebaker, White & Yellow Coach Trucks using 1.234 King Bolts. Length Overall 16 1/2".	
5770	1.3605"	Set of two reamers for Timken Axles Nos. 35000, 35100, A, D, H, N, TW, 35020H, 35650. Dodge, Ford School Bus, Kenworth, Reo, Autocar, Mack, White & Yellow Coach Trucks using 1.359 King Bolts. Length Overall 16 1/2".	
5771	1.4855"	Set of two reamers for Timken Axle 36000 Series. G.M.C., Kenworth, Reo Trucks & Yellow Coach using 1.484 King Bolts. Length Overall 18 1/2".	



REAMER CUTTING OIL

This Reamer Cutting Oil prevents grabbing, galling, chattering, and squealing. A few drops distributed evenly over the surface to be reamed or machined will save many times its cost on repairs and resharping of your cutting tools. Also recommended for all tapping, threading, turning, and drilling, and is especially important when reaming the tough alloy bronze bushings now used on most cars and trucks.

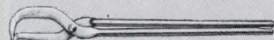
No. 5695 Case of 12 one quart cans **30 lbs.**
No. 5696 One gallon can **9 lbs.**



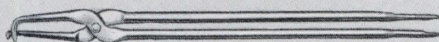
5696



3120



3121

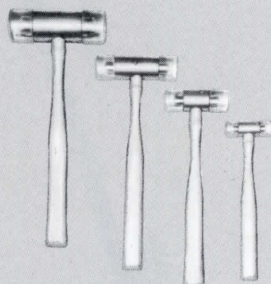


3122

BRAKE SPRING PLIERS

Three brake spring pliers in styles and sizes to meet the preferences of all mechanics and the requirements of every job. Each plier has distinct features which make it especially preferable for certain jobs. Forged from alloy steel and heat treated. Cadmium finish. Packed 6 to a Carton.

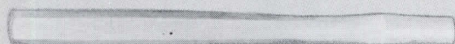
Number	Length	Shipping Weight
3120	8½"	½ lb.
3121	14"	¾ lb.
3122	22"	1½ lb.



PLASTIC TIPPED HAMMERS

A light, tough, resilient hammer for working on delicate machine parts such as wrist pins, gears, bearings, radio, refrigerator, body, and electrical parts. Body machined from alloy steel. Handles straight grain hickory, natural finish. Tips are tough Tenite II. Packed 6 to a Carton.

Number	Tip Dia.	Handle Length	Nominal Weight
4101	7/8"	9"	4 oz.
4102	1¼"	11"	8 oz.
4104	1⅜"	12"	16 oz.
4106	1¾"	13"	32 oz.



OCTAGON MACHINISTS HAMMER HANDLES

No. 1 grade hickory, well balanced, excellent finish. Packed in Cartons of 1 Dozen.

Number	Length	Wt. per Doz.	Number	Length	Wt. per Doz.
4501	10"	2 lb.	4504	14"	4 lb.
4502	11"	3 lb.	4505	16"	6 lb.
4503	12"	3½ lb.	4506	18"	7 lb.

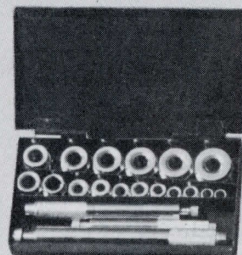


4730

HOLLOW PUNCH SET

No. 4730

A compact set of seven hollow punches from ¼" to ⅝" in diameter. Fine, ground cutting edges for cutting holes in gaskets, rubber, leather, etc., will last indefinitely if material to be cut is placed on wood block or babbitt. Packed in steel box. Cadmium finish. Shipping weight, 1¼ lbs.

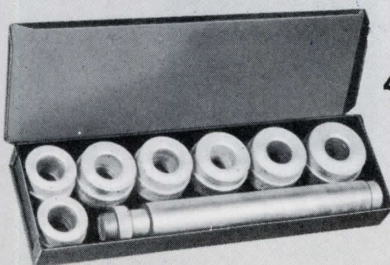


4820

UNIVERSAL BUSHING DRIVER SET

No. 4820

Handles all passenger car bushings and most truck and tractor bushings. Turned from high grade steel and heat treated for hard use and long life. The set, complete with steel case, includes three retaining bodies and nuts, and sixteen bushing drivers from ⅜" to 1¼". Cadmium finish. Shipping weight, 4 lbs.



4830

TRUCK BUSHING DRIVER SET

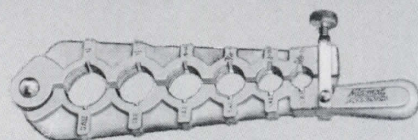
No. 4830

A heavy duty bushing removing and driving set for piston pin, steering knuckle, and other bushings on most trucks, buses, tractors, farm, road and construction equipment. Set consists of driving handle with nut and seven bushing adaptors from 1-5/16" to 1¾" packed in a sturdy metal box. Cadmium finish. Shipping weight, 6 lbs.

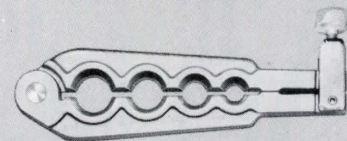
AXLE RETHREADERS

A necessary tool for every service shop. Designed to restore battered threads on axle and propeller shafts. It is often difficult to remove the wheel without damaging the threads but this tool quickly recharges the threads without loss of time. Note that No. 6101 also has $\frac{3}{4}$ "-20 threads for Hudson, Kaiser and several other late model automobiles. Cadmium finish.

Number	Thread Sizes	Weight
6101	$\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", 1 $\frac{1}{8}$ " SAE and $\frac{3}{4}$ " N.F.	2 $\frac{1}{2}$ lbs.
6102	$\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1" SAE	1 $\frac{1}{2}$ lbs.



6101

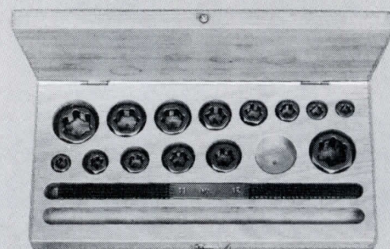


6102

THREAD RESTORERS

Restores threads quicker on any battered or damaged bolt, stud or shaft. Each die is the same size as the matching nut — no special holders required, use regular wrench or socket. Not over-size — close clearance chases out damaged thread, does not recut good part. Available in sets with either SAE or USS threads. Also both sets available with two thread files packed in custom built wood case as illustrated.

Number	Thread Sizes	Weight
6105	$\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " SAE	$\frac{3}{4}$ lbs.
6106	$\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " USS	$\frac{3}{4}$ lbs.
6110	Complete Set in Wood Case	2 $\frac{1}{2}$ lbs.

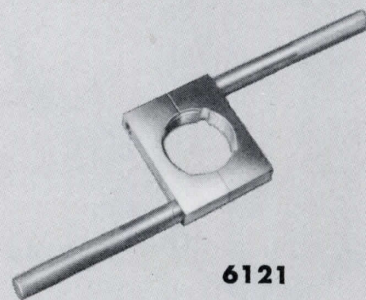


6110

AXLE HOUSING RETHREADERS

A real time-saving tool for fleet owners and garages servicing trucks and buses. This tool is for restoring damaged threads on axle housings, often damaged in removing the wheel. Cadmium finish. Available in the following sizes to fit most trucks.

Number	Size	Weight
6122	2 $\frac{1}{8}$ "—16	2 $\frac{1}{2}$ lbs.
6123	2 $\frac{1}{8}$ "—12	2 $\frac{1}{2}$ lbs.
6124	2 $\frac{1}{4}$ "—16	2 $\frac{1}{2}$ lbs.
6125	2 $\frac{1}{4}$ "—12	2 $\frac{1}{2}$ lbs.
6140	Set of four dies (6122, 6123, 6124, 6125)—8 lbs.	

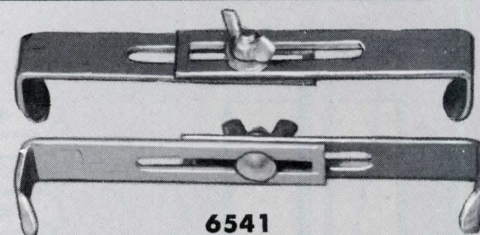


6121

BRAKE PISTON CLAMPS

No. 6541

Holds the piston in cylinder on hydraulic brake jobs when removing shoes to reline brakes, repair wheel mechanism, etc. Saves bleeding the line. Fast and efficient. Shipping weight, 8 oz.

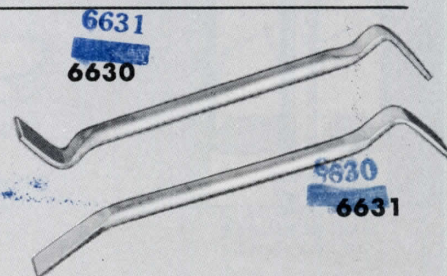


6541

BRAKE ADJUSTING TOOLS

Two tools necessary for adjusting the brakes on most later model cars and trucks. Forged of alloy steel, cadmium finish. Packed 6 to Carton.

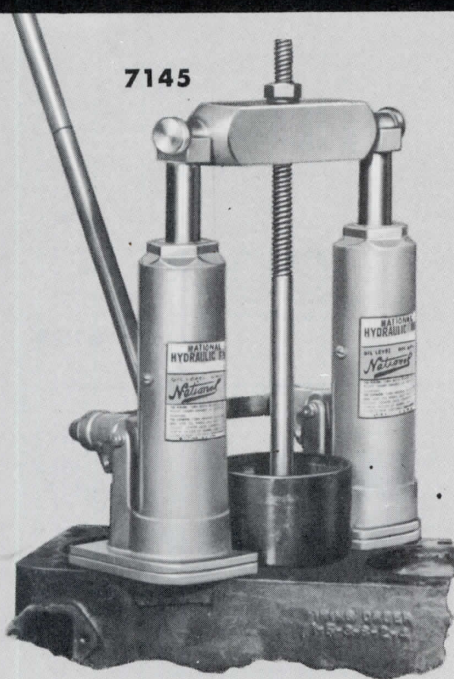
Number	Application	Weight
6630	Chevrolet	1 lb. per ctn.
6631	Bendix Brakes	1 lb. per ctn.



6631
6630

6630
6631

Hydraulic Puller



7145

HYDRAULIC PULLER SET

No. 7145

This new improved sleeve puller is operated by two Hydraulic Jacks pumped with a single handle. Makes easy work of one of the most difficult jobs in the shop. Designed so that one man can pull a set of cylinder sleeves in fifteen minutes and replace them in the same amount of time. This puller, packed complete in convenient steel carrying case, can be taken right to the job. Reaches all six cylinders without removing engine block from chassis. Fast and simple to set up. Exerts even, smooth pressure to break loose or insert snug-fitting sleeves. The unit has many general applications for other pulling or pressing jobs. Guaranteed against defective material and workmanship. Pulls and replaces sleeves from 3 inch I.D. to 4 3/4 inch shoulder O.D. Set of four standard Sleeve Adaptors furnished with each unit for sleeves of 3-7/16 inches, 3-9/16 inches, 4 1/8 inches and 4 3/8 inches I.D. Shipping weight, 88 lbs.



7146

HYDRAULIC PULLER EXPANSION KIT

No. 7146

This kit increases the capacity of Hydraulic Puller No. 7145 so that cylinder sleeves up to 5 3/4" I.D. can be pulled and replaced. Kit consists of wider base plate, longer Bridge bar and two U-Bar adapting blocks. Sleeve adaptors listed below must be ordered for use with this Kit. Shipping weight, 19 lbs.

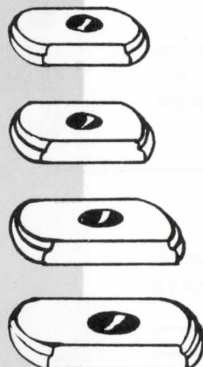
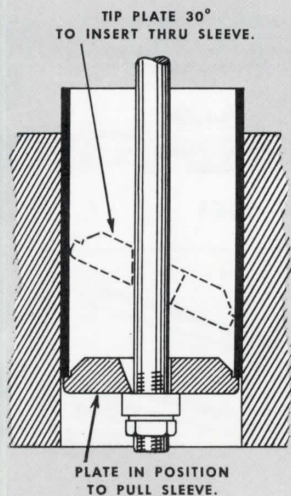
SLEEVE ADAPTORS

The following sleeve adaptors are available for use with No. 7145 Hydraulic Puller. Expansion Kit No. 7146 required for Adaptor No. 7177H and larger.

Number	Sleeve I. D.	Number	Sleeve I. D.	Number	Sleeve I. D.
7151H	3"	7159H	3 1/2"	*7173H	4 3/8"
7152H	3 1/16"	*7160H	3 5/16"	7174H	4.4"
7153H	3 1/8"	7161H	3 5/8"	7175H	4 1/2"
7154H	3 3/16"	7163H	3 3/4"	7177H	4 5/8"
7155H	3 1/4"	7165H	3 7/8"	7179H	4 3/4"
7156H	3 5/16"	7167H	4"	7181H	4 7/8"
7157H	3 3/8"	*7169H	4 1/8"	7183H	5"
*7158H	3 1/2"	7171H	4 1/4"	7187H	5 1/4"
				7195H	5 3/4"

*These adaptors furnished as a part of Puller Set No. 7145.

Other sizes within above range furnished upon request.



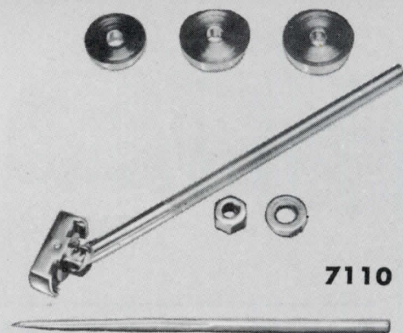
Valve and Cylinder Tools

National
GARAGE TOOLS

FORD SLEEVE REMOVER AND REPLACER

No. 7110

A complete tool for removing and replacing sleeves on all Fords, Mercurys, and some tractors. Set consists of a sleeve collapsing chisel and replacer assembly, complete with three sleeve adaptors. The replacer assembly has a cylinder adaptor that assures true alignment thus avoiding the binding, distortion and bending often found in most sleeve replacing operations. Cadmium finish. Shipping weight, 12 pounds.



7110

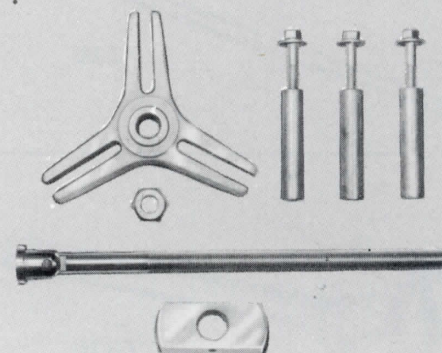
UNIVERSAL SLEEVE REMOVER

No. 7140

A universal, sleeve removing tool for both wet and dry sleeves on trucks and tractors. Consists of a three-way body supported by adjustable legs. The long threaded shaft has a swivel end to which the proper size sleeve adaptor plate is attached. The jam nut rests on a recessed thrust bearing which eliminates most of the friction in operation. Selection of the proper size sleeve adaptors may be made from the list below. Shipping weight of assembly only, 20 lbs.

Adaptor Number	Sleeve I. D.	Adaptor Number	Sleeve I. D.	Adaptor Number	Sleeve I. D.
7151	3"	7159	3 1/2"	7173	4 3/8"
7152	3 1/16"	7160	3 9/16"	7141	4.4"
7153	3 1/8"	7161	3 5/8"	7175	4 1/2"
7154	3 3/16"	7163	3 3/4"	7177	4 5/8"
7155	3 1/4"	7165	3 7/8"	7179	4 3/4"
7156	3 5/16"	7167	4"	7181	4 7/8"
7157	3 3/8"	7169	4 1/8"	7183	5"
7158	3 1/2"	7171	4 1/4"	7187	5 1/4"
				7195	5 3/4"

Other sizes within above range furnished upon request.



Removing Sleeve

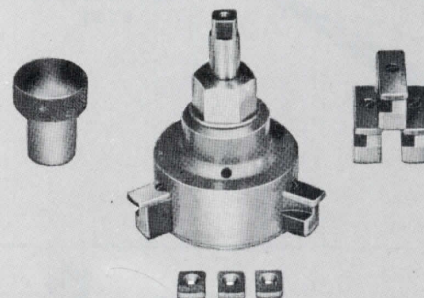


7140

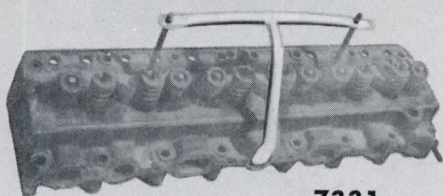
CYLINDER RIDGE REAMERS

A perfect aligning ridge reamer, which cuts with three blades instead of one, doing the job in less time and eliminating all undercutting. Set is packed complete, with three sets of blades, set of filler strips, and operating knob in neat, metal box. Sets are available in the following sizes:

Number	Size	Description	Weight
7210	2 3/16" to 3 3/16"	Ridge Reamer	3 3/4 lbs.
7211	2 9/16" to 3 3/4"	Ridge Reamer	4 lbs.
7212	3" to 4 3/16"	Ridge Reamer	4 lbs.
7213	3 3/4" to 4 7/8"	Ridge Reamer	4 1/2 lbs.
7214	4 7/8" to 6 7/16"	Ridge Reamer	8 lbs.
7215	4 7/8" to 6 7/16"	Set of Three Blades	3/4 lb.
7216	6 7/16" to 8"	Set of Three Blades	1 lb.
7217	2 3/16" to 3 3/16"	Set of Three Blades	1/2 lb.
7218	2 9/16" to 3 3/4"	Set of Three Blades	1/2 lb.
7219	3 3/4" to 4 7/8"	Set of Three Blades	1/2 lb.
7220	3" to 4 3/16"	Set of Three Blades	1/2 lb.



Valve and Cylinder Tools

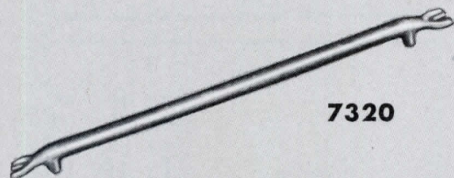


7331

CHEVROLET HEAD HANDLE

No. 7331

A head handling tool for Chevrolet and some GMC valve-in-head engines. Quickly applied, one man can remove and replace the head. Handle is designed so that head is held directly over center of balance. This is important as it permits replacing head without damaging head gasket. Tubular constructed to eliminate weight and add strength. Cadmium finish.

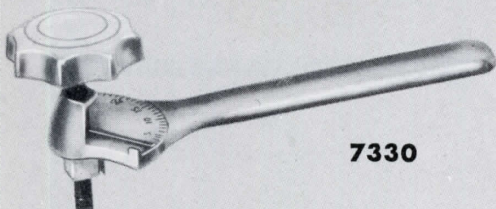


7320

FORD VALVE GUIDE LOCK REMOVERS

No. 7320

For removing the valve guide locks on all Ford V-8 cars and trucks. Drop forged and heat treated. Cadmium finish. Shipping weight, 3 lbs.

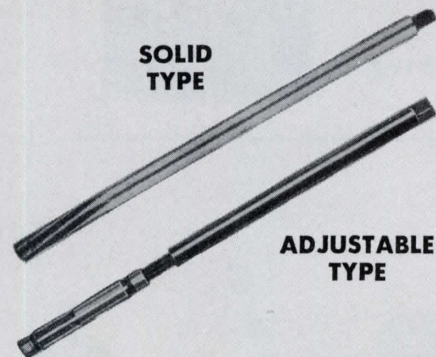


7330

VALVE TAPPET ADJUSTING GAUGE

No. 7330

For adjusting the valves in all valve-in-head engines. Cuts time required for setting valves by as much as 50%. With a 1/2" square drive socket the operator can loosen lock nut, set tappet screw for the desired clearance, and retighten nut in one continuous operation. No feeler gauge required. Highly polished die cast construction. Accurately calibrated. Shipping weight, 12 oz.



**SOLID
TYPE**

**ADJUSTABLE
TYPE**

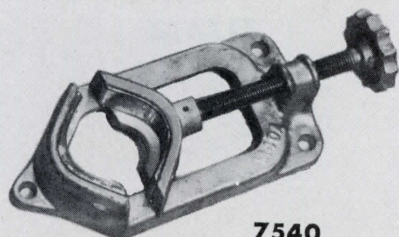
VALVE GUIDE REAMERS

The use of valve guide reamers provides the most practical and only sure way to remove carbon and true the valve guides. Available in the sizes listed below in both solid spiral type and adjustable blade expansion type.

SOLID SPIRAL TYPE		ADJUSTABLE BLADE EXPANSION TYPE	
Number	Size	Number	Size
7340	5/16"	7347	27/64"
7341	21/64"	7348	7/16"
7342	11/32"	7349	29/64"
7343	23/64"	7350	15/32"
7344	3/8"	7351	31/64"
7345	25/64"	7352	1/2"
7346	13/32"	7353	33/64"
		7360	1/4" to 9/32"
		7361	9/32" to 5/16"
		7362	5/16" to 11/32"
		7363	11/32" to 3/8"
		7364	3/8" to 13/32"
		7365	13/32" to 7/16"
		7366	7/16" to 15/32"

VALVE GUIDE REAMER SETS

Number	Description
7370	Set of 5 solid type Reamers, sizes 5/16", 11/32", 3/8", 7/16", 1/2" in metal box.
7371	Set of 7 adjustable reamers numbers 7360 through 7366 in metal box.



7540

PISTON VISE

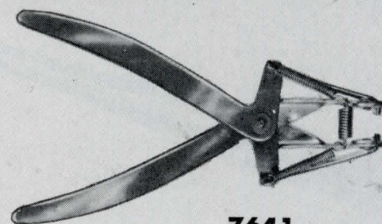
No. 7540

The piston vise is necessary for removing or fitting rings, pins and connecting rods. It protects the parts and greatly speeds up the operation. The National piston vise fastens to the bench and holds all types and sizes of pistons firmly. The jaws are lined with lead babbitt to prevent damage to the piston. Shipping weight, 7 pounds.

RING HANDLING TOOL

No. 7641

With this tool, a ring of any size can be held firmly and expanded evenly. Ample clearance is achieved without twisting or distortion. It saves time and eliminates warping or breaking rings. Shipping weight, 6 oz.

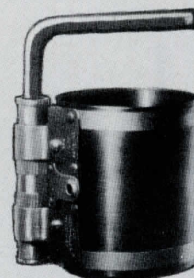


7641

RATCHET RING COMPRESSORS

These popular style ring compressors work quickly and smoothly on all types of plain or multiple rings without risk of damaging the rings or pistons. Complete with ell handle, available in the following styles and sizes:

Number	Capacity	Single or Double Band	Weight
7660	2½"—5"	Single Band	¼ lb.
7666	2⅞"—5"	Double Band	1 lb.
7670	3½"—7"	Double Band Truck Size	1 ¼ lbs.



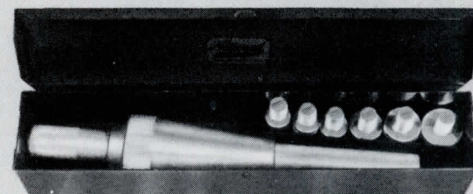
7666

UNIVERSAL CLUTCH ALIGNMENT TOOL

A complete clutch alignment set that can be used on approximately 90% of all cars. An efficient trouble-saver that no garage can afford to be without. No. 8121 packed in metal box which eliminates annoying searches through many tools to find the proper pilot. Set contains 6 pilots covering the following sizes: .392, .562, .589, .612, .624, .668, .717, .749, .786, .870, .983, 1.180. Cadmium finish.

8111 SET IN CARTON

8121 SET IN STEEL BOX

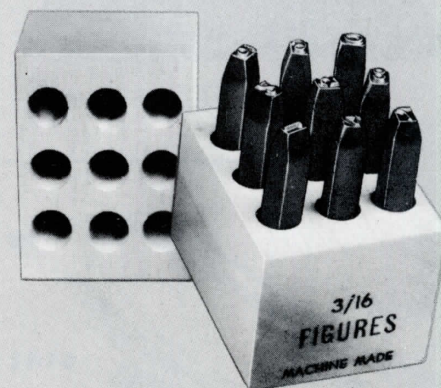


8121

STEEL STAMPS

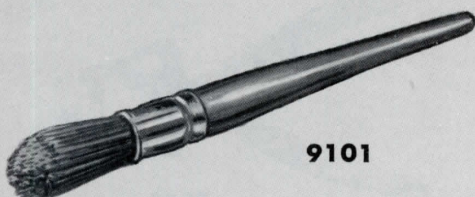
Machine made Gothic face figure and letter stamps for every mechanic's tool box. Made from high carbon alloy steel, fully heat treated, these stamps are guaranteed not to mushroom on hammer end or bend in the shank. Each stamp is rust-proofed and has Anti-Chip characters. Packed in sets of 28 letters or 9 figures in wood box handsomely lacquered.

Number	Description
9840	Set of nine ⅛" figures
9841	Set of nine ⅜" figures
9842	Set of nine ¼" figures
9845	Set of twenty-eight ⅛" letters
9846	Set of twenty-eight ⅜" letters
9847	Set of twenty-eight ¼" letters



9841 SET

Automotive Brushes



9101

MOTOR CLEANER

No. 9101

A handy, practical brush for engine and chassis cleaning. Made of stiff, grey fibre, vulcanized in rubber, it is a perfect tool for removing grease and carbon with gasoline. The brush is 1-3/16" in diameter, with bristles 3" long.

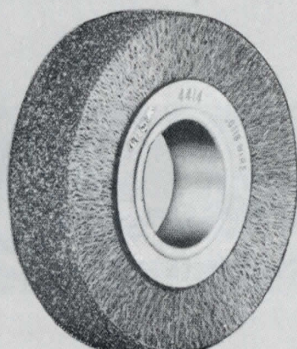


9123

ROTARY BRUSHES FOR ELECTRIC DRILLS

Our rotary brushes are designed primarily for cleaning carbon from cylinder heads, blocks, combustion chambers and valve parts. They are exceptionally sturdy and may be used with 1/4", 3/8", or 1/2" electric drills.

Number	Diameter	Ship. Weight
9123	3/4"	1/4 lb.
9124	1"	1/2 lb.



9142

WIRE BRUSHING WHEELS

These wide faced brushes present a densely filled brushing space, with a maximum number of cutting ends contacting the work. Designed for quickly removing rust, paint, scale, and corrosion; for brushing and cleaning motor and body parts, miscellaneous metal and threaded parts, roughing rubber, buffing of tubes, brushing the inside and outside of casings before vulcanizing, etc. May be mounted on either portable tools or bench grinders.

Number	Diam.	Brush Face	Arbor Sizes	Ship. Wt.
9141	4"	7/8"	1/2", 5/8"	3/4 lb.
9142	6"	1"	1/4", 3/8", 1/2", 5/8" or 1"	1 1/2 lbs.



9151

FLOOR SWEEPING BRUSH

No. 9151

This brush, 18" wide, is excellent for sweeping garage floors, runways, driveways, etc. Has best quality Palmyra bristles with a 4" trim. A five foot heavy duty wood handle is included. Weight, 3 1/2 lbs.



9160

9161

WIRE SCRATCH BRUSHES

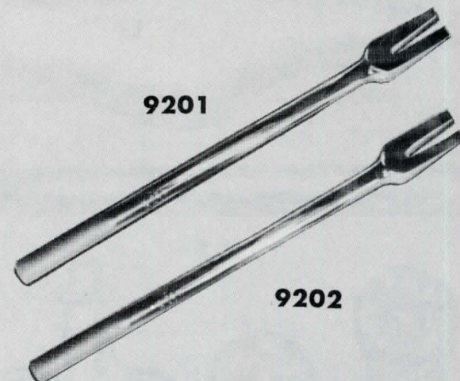
Wire scratch brushes for cleaning parts, motor blocks, etc. Ruggedly constructed for long service. Available in two styles and sizes.

Number	Overall Length	Bristle Length	No. of Rows	Ship. Wt.
9160	14"	1"	3	3 lbs. per doz.
9161	10 1/4"	1"	4	3 lbs. per doz.

CLEVIS AND HINGE PIN PULLERS

A pair of popular size wedge tools for many difficult jobs. Ideal for removing the clevis pins on brake rods, hinge pins on doors, and many other applications. Heat treated and bright cadmium plated. Forged from alloy steel, will not mushroom or bend. Available in the following sizes:

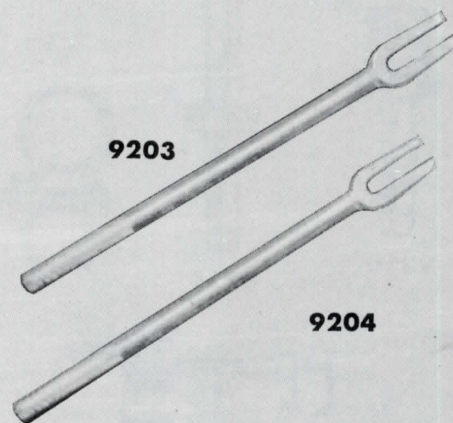
Number	Description	Size	Weight
9201	Clevis Pin Tool	1/4" Opening	3/4 lb.
9202	Clevis Pin Tool	5/16" Opening	3/4 lb.



TIE ROD AND SHOCK LINK SPREADERS

These tools work on the wedge principle. Designed and forged from alloy steel to withstand a daily beating under the most severe conditions. Fully guaranteed. Cadmium finish.

Number	Description	Size	Weight
9203	Tie Rod Spreader	1 1/16" Opening	2 lbs.
9204	Shock Link Spreader	9/16" Opening	2 lbs.

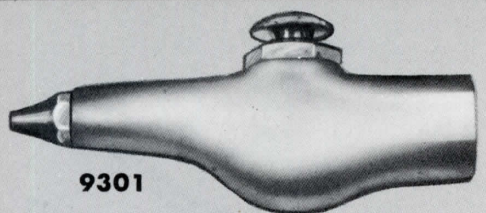


PITMAN ARM WEDGE

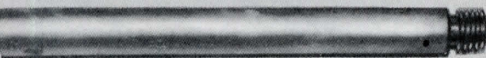
No. 9205

This is a sturdy tool, constructed for removing pitman arms and for performing similar operations. Wedge end of tool is placed or driven between parts to be removed and a few sharp blows of a hammer accomplishes an otherwise difficult job. Cadmium plated alloy steel will not mushroom or bend. Distance between the prongs, 1 1/8". Length, 10". Shipping weight, 2 pounds.





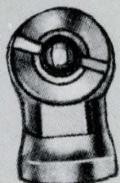
9301



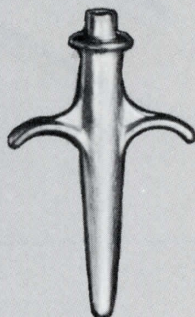
9302



9304



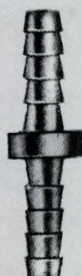
9305



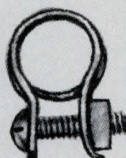
9306



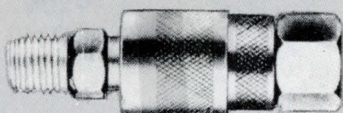
9310



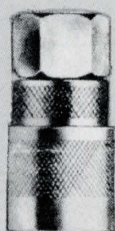
9311



9312



9320



9321



9322



9323



9325

AIR LINE FITTINGS

The air line fittings shown on this page are designed and manufactured to exacting standards, and are of precision construction. Guaranteed to be air tight and leak proof. The complete set of air hose line fittings and accessories available are as follows:

NUMBER	DESCRIPTION	SIZE OR LENGTH
9301	Air Line Blo Gun	1/4" IPT
9302	Blo Gun Extension	4"
9304	Male Air Chuck	1/4" ID Hose
9305	Female Air Chuck	1/4" IPT
9306	Air Chuck Nozzle	Standard
9310	Male Hose End	1/4" IPT x 1/4" ID Hose
9311	Air Hose Mender	1/4" ID Hose, Both Ends
9312	Air Hose Clamp	5/8" OD Hose
9315	Neoprene Washer	Standard
9320	Quick Change Coupler	1/4" IPT Both Female & Male
9321	Coupler Body Only	Female 1/4" IPT
9322	Coupler Body Only	Male 1/4" IPT
9323	Coupler Plug Only	Male 1/8" IPT
9324	Coupler Plug Only	Male 1/4" IPT
9325	Coupler Plug Only	Female 1/4" IPT
9326	Coupler Plug Only	Female 1/8" IPT
9330	Air Hose Repair Kit	

Consists of:

1 #9305 Female Air
Chuck

1 #9310 Male Hose End

1 #9311 Air Hose Mender

3 #9312 Air Hose Clamps

IMPORTANT NOTICE
All of the instruments on this page are inspected, tested, and checked for accuracy before leaving the factory. Because they are subject to wear and damage in use, and because it is virtually impossible to ascertain when and how damage occurred, no claims for defects will be allowed. All returns to the factory will be serviced at the cost of handling and parts only.

Tune-Up Equipment

National
GARAGE TOOLS

STUBBY COMPRESSION TESTER

No. 9408

Small and economical, yet accurate and reliable. Registers 0 to 200 pounds PSI. Only 5½" long. Plain glass 2" dial. Satin nickel finish. Shipping weight, ¾ lb.



9408

DELUXE COMPRESSION TESTER

No. 9409

A quality tester, calibrated in 5 pound units, 0 to 200 pounds. Has large, easy-to-read dial, chrome case, beveled glass and threaded ring. Shank is off-set for easy application under cowl- ing on Chevrolet, and other late model cars. Length only 6½". Shipping weight, 1¼ lbs.

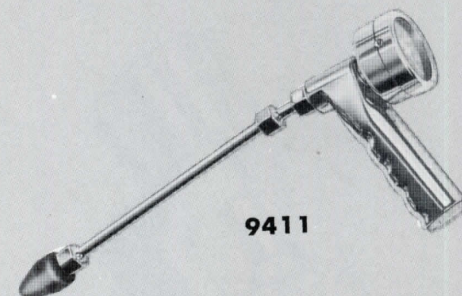


9409

PISTOL GRIP COMPRESSION TESTERS

These testers are available in two styles, the No. 9410 with short shank for taking compression from cylinder under firewall cowl on late model Chevrolets and others. The No. 9411 has a 10" long shank for reaching plug hole on V-8 engines becoming popular on many makes. Horizontal 2" dial for easy reading, registers 0 to 200 pounds. Spring mounted pistol grip handle swivels, contains two extra tips and valves.

Number	Description	Weight
9410	Short Shank Compression Tester	1¾ lbs.
9411	Long Shank Compression Tester	1¾ lbs.



9411

VACUUM GAUGE

No. 9420

This gauge quickly detects many engine troubles from leaky manifolds to weak valve springs. Dial is marked in different colors to indicate various types of motor trouble. Normal readings are in green. Restriction valve in hose eliminates excessive pointer vibration. A new feature is the universal jointed spring clip which permits the gauge to remain in an easy-to-read position regardless of where it is attached. Several feet of hose are included with gauge. Shipping weight, 2 lbs.

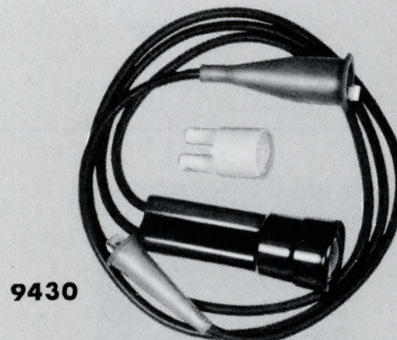


9420

TIMING LIGHT

No. 9430

This tool, which is usually given hard usage, is enclosed in sturdy case for protection. Specially shaped neon coil provides light brilliant enough to show timing marks in bright daylight. All parts are replaceable at a nominal cost. It is not necessary to return the unit to the factory at any time. Its cartridge neon element is a complete unit that can be replaced by removing the bull's eye lens and inserting a replacement tube. Order number for cartridge replacement tube is 9430-1. Shipping weight, 1¼ lbs.



9430

AUXILIARY STARTER SWITCH

No. 9437

Rubber enclosed safety clips on 5 ft. lead permit mechanic to turn engine over from any position. Chrome plated switch is knurled. Shipping weight, 1 lb.



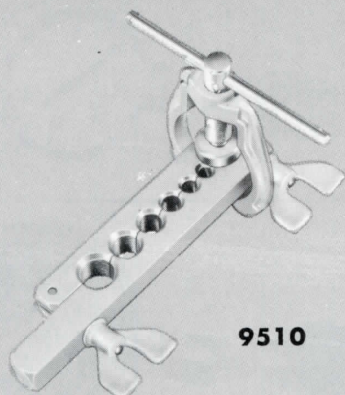
9437

Copper Tube Tools

COPPER TUBE FLARING TOOL

No. 9510

A wide-range flaring die with compressor attachment, which handles most sizes of soft copper tubing used in Automotive work. Has capacity for the following O.D. size tubing: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", and 5/8". Tool can be used without removing tubing from equipment. Die is hinged; one end opens for rapid application. Holes are threaded for secure grip. Compressor is a steel forging, which permits compactness without loss of strength. Cadmium finish. Shipping weight, 2 pounds.



9510

TUBING CUTTER

No. 9555

A new and completely redesigned tube cutter that is lighter, more durable and much more efficient. The pressure rollers operate on a sliding feed mechanism and the fixed cutter wheel is mounted on a wide axis so perfect alignment is guaranteed and threading is eliminated. Ball bearings in the big, easy-to-grasp knob make it possible to spin the rollers down on to the tube for fast operation. For safety and convenience the reamer knife is retractable, yet locks solidly open. Weighing only 7 1/2 ounces, the unit has an enclosed feed so its overall length is always 4 1/2" with the reamer closed. This permits the cutter to be used in tight places without removing the tubing to be cut. Rugged, aluminum die-cast body, machined to close tolerances, is strong enough for the roughest service. The cutter blade and reamer knife are easily replaceable for extra long service.



9555

FLARING AND CUTTING TOOL KIT

No. 9540

9510 Flaring Tool and 9555 Tubing Cutter packed together in an attractive, compartmented, steel box. Since every man who uses a flaring tool also uses a tube cutter and vice versa, this kit provides a convenient place for keeping the complete tube servicing unit intact. Prevents loss or damage that often occurs when these tools are thrown loose in the tool box with other or heavier tools. Shipping weight, 4 pounds.



9540

NATIONAL FEELER GAUGES

Accurately made from imported Swedish Steel, carefully heat-treated and tempered. Sets are made up to fill the need of practically any requirement. Equipped with a knurled thumb nut for instant release. When thumb nut is tightened, blade is securely locked in working position while blades not needed are locked in the handle. Any blade can be easily removed from handle if desired.

STANDARD GAUGE No. 9601

Contains 10 blades one each .012, .010, .008, .007, .006, .005, .004, .003, .002, .015.

MASTER GAUGE No. 9602

Complete for general repair and machine shop use. Contains 25 blades one each .032, .030, .028, .025, .024, .022, .020, .018, .016, .015, .014, .013, .012, .011, .010, .009, .008, .007, .006, .005, .004, .003, .002, .0015, .035.

SPECIAL FORD GAUGE No. 9603

This Special Ford Gauge takes care of the Ignition System and all Valves on all A, B and V-8 Fords. Has .010, .011, .012, .013, .014, .015, .016, .017, .018, .020, .025 blades; .025, .028, .030, .017, .030 Wire Gauges and Gap Adjusting Wrench.

SPECIAL CHEVROLET GAUGE No. 9604

This set consists of .006, .007, .008, .010, .012, .013, .015, .020, .018, .022 and .024 blades; .032, .035 and .040 wire gauges, a gap adjusting wrench and a file.

COMBINATION GAUGE No. 9605

Contains 21 blades, one each .013, .010, .008, .007, .006, .005, .004, .003, .002, .015, .028, .025, .024, .022, .020, .018, .015, .014, .013, .012, .032.

IGNITION GAUGE No. 9606

Everything needed for points and spark plugs. Contains 11 blades one each .012, .013, .014, .015, .032, .035, .018, .020, .022, .025, .028.

SPARK PLUG WIRE GAUGE No. 9607

This gauge consists of one each .22, .25, .32, .40, .27, .28, .30, .35 Wire Gauges.

BRAKE GAUGE No. 9608

Contains 9 blades, one each .002, .004, .005, .006, .007, .008, .010, .012, .015.

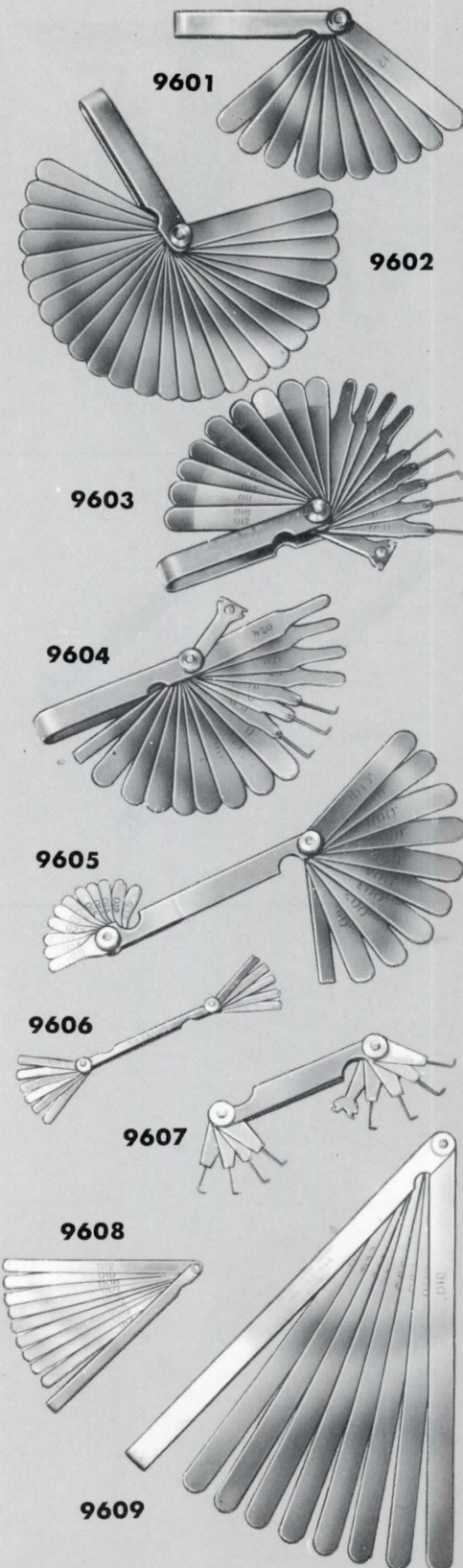
PISTON GAUGE No. 9609

Contains 8 blades one each .010, .008, .006, .005, .004, .003, .002, .015.

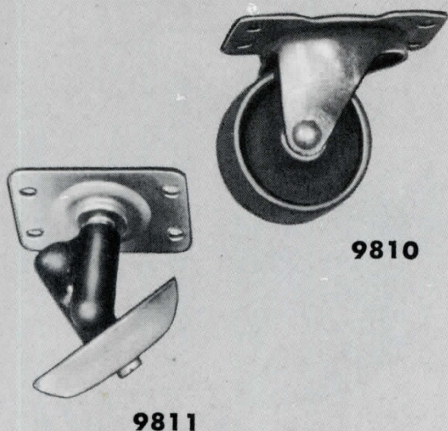
FEELER STOCK HOLDERS

A small supply of Feeler Stock can be carried in these holders and pulled out as needed. Standard Blades may also be used. Holders have positive sliding lock which securely locks stock or blades. Made of cold rolled steel and satin nickel plated. The double end holder is fine for valve work, one end for intake valves and the other for exhaust valves. A useful tool for the mechanic.

No. 9611	Single End	Length 4 $\frac{5}{8}$ "
No. 9612	Double End	Length 9 $\frac{7}{8}$ "



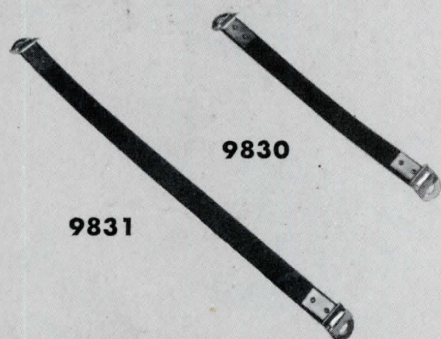
Miscellaneous Tools



REPLACEMENT CREEPER CASTERS

Two styles of casters for reconditioning creepers, or mounting desks, benches, tool boxes, etc., on wheels. The 9810 Standard Caster has recessed ball bearings in the curved raceway. The 9811 Caster is of the eccentric shaft type. Both casters are designed for long trouble-free life.

Number	Overall Height	Wheel Diam.	Top Plate	Load Capacity	Shipping Weight
9810	2½"	2"	1⅞" x 2⅝"	90 lbs.	¾ lbs.
9811	2¾"	2½"	1⅞" x 2⅝"	75 lbs.	¾ lbs.



BATTERY CARRIERS

Dependable battery carriers are necessary for fast, safe handling of batteries. Our carriers are made from heavy fabric, treated with acid resistant coating. The ends have a two piece, "Sure-lok" grip which positively cannot slip. Shipping weight, approximately ½ lb. each.

Number	Overall Length
9830	15"
9831	23"

GUARANTEE

National Tools are fully GUARANTEED to perform the job for which they were designed. Any tool which proves defective in material or workmanship will be repaired or replaced. Tools returned must be prepaid and are subject to our inspection to determine whether defective. Tools that have been heated, ground or otherwise altered will be repaired at the cost of new parts.

NATIONAL MACHINE & TOOL CO.

4077 PAGE AVE.

JACKSON, MICHIGAN, U.S.A.